

CLAIMS

1. A method of fabricating a light duct (14) of thermoplastic material, the duct comprising a light relay (26) constituted by a rectangular section bar for
5 conveying light along its longitudinal axis (A-A') referred to as a "first" axis, and provided at one of its ends both with a wall (28) that is inclined relative to said first axis, and with a lens (32), the axis of revolution (B-B') of the lens being contained in a
10 longitudinal plane of symmetry, said duct (14) presenting a given maximum height H_{\max} beyond the thickness of the lens and a given mean length L_{moy} along its longitudinal axis (A-A'), the duct being characterized in that it is made as a single piece by injection molding said
15 thermoplastic material in a mold (1) presenting a cavity of shape identical to that of the duct, the injection taking place through a feed orifice disposed on one side of said cavity over a face that is substantially parallel to the plane defined by said axes (A-A', B-B'), said feed
20 orifice presenting a height h lying in the range $0.2 H_{\max}$ and H_{\max} , and a length ℓ lying in the range $0.2 L_{\text{moy}}$ and $0.8 L_{\text{moy}}$, the thermoplastic material being injected at a rate lying in the range $400 \text{ mm}^3/\text{s}$ to $1500 \text{ mm}^3/\text{s}$.
- 25 2. A method according to claim 1, characterized in that said height h of said feed orifice is equal to $0.8 H_{\max}$ and said length ℓ of said feed orifice is equal to $0.8 L_{\text{moy}}$.
- 30 3. A method according to claim 1 or claim 2, characterized in that said rate is equal to $725 \text{ mm}^3/\text{s}$.
4. A method according to any preceding claim, characterized in that said mold (1) is maintained at a
35 temperature regulated in the range 70°C to 90°C .

5. A method according to any preceding claim,
characterized in that said mold (1) includes a lateral
overflow orifice symmetrical to said feed orifice
relative to the plane defined by said axes.
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6. A method according to any preceding claim,
characterized in that said mold (1) is extended by a
first auxiliary mold portion of substantially rectangular
section and of outlet corresponding to said feed orifice.
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7. A method according to claims 5 and 6, characterized in
that said mold (1) is extended by an overflow second
auxiliary mold portion of substantially rectangular
section, and of inlet corresponding to said lateral
overflow orifice.
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8. A method according to any preceding claim,
characterized in that it includes a compacting and
holding step applied to the injected material.
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9. A method according to claim 8, characterized in that
said compacting and holding step is performed in stages.
10. A method according to any preceding claim,
characterized in that said thermoplastic material is
"Zeonex".
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11. A method according to any one of claims 1 to 9,
characterized in that said thermoplastic material is
PMMA.
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12. A method according to claim 11, characterized in that
the PMMA is injected at a temperature of about 220°C and
at a rate of substantially 725 mm³/s, and is then
compacted at 58 MPa.
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13. A method according to claim 12, characterized in that the PMMA is compacted after injection at 43 MPa for 1 s, then at 46 MPa for 2 s, then at 50 MPa for 3 s, and finally at 58 MPa for 40 s, and its cooling time in the
5 mold is then 150 s.

14. An electronic display arrangement suitable for mounting on a frame (34) of the pair of spectacles type or on a specific system for positioning in front of the
10 eyes of a user, the arrangement comprising at least one light duct (14) fabricated using the method in accordance with any preceding claim.